

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended): An antenna system comprising:  
a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one central passive conductive member situated between the plurality of antenna elements, having edges displaced from and substantially directed toward the plurality of active antenna elements, and cooperating therewith to establish a plurality of hemispherical beam patterns.
2. (Canceled):
3. (Previously Presented): The antenna system of claim 1 wherein the plurality of active antenna elements are disposed respectively along the periphery of the at least one conductive member, and cooperating therewith to establish a respective plurality of hemispherical beam patterns.
4. (Original): The antenna system of claim 3 wherein a first portion of antenna elements are adapted to operate over a first wireless frequency band, and wherein a second portion of antenna elements are adapted to operate over a second wireless frequency band.
5. (Original): The antenna system of claim 4 wherein the first and second wireless frequency bands are 2.4 GHz and 5 GHz wireless bands.
6. (Currently Amended): An~~[[The]]~~ antenna system ~~of claim 1, comprising:~~  
at least one plurality of active antenna elements for sending and receiving a wireless signal; and

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

**BEST AVAILABLE COPY**

at least one passive conductive member, having edges displaced from and substantially directed toward the at least one plurality of active antenna elements, and cooperating therewith to establish a plurality of hemispherical beam patterns;

wherein the at least one conductive member comprises a plurality of non-intersecting conductive members wherein each conductive member is associated with at least one antenna element.

7. (Original): The antenna system of claim 6 wherein the plurality of conductive members comprise first and second conductive members, located at a substantially perpendicular angle.
8. (Original): The antenna system of claim 7 wherein each conductive member is associated with a pair of antenna elements, disposed at respective opposite ends of the respective conductive member.
9. (Original): The antenna system of claim 8 wherein the pair of antenna elements associated with the first conductive member are adapted to operate in a first wireless frequency band and the pair of antenna elements associated with the second conductive member are adapted to operate in a second wireless frequency band.
10. (Original): The antenna system of claim 9 wherein the first and second wireless frequency bands are 2.4 GHz and 5 GHz wireless bands.
11. (Original): The antenna system of claim 1 wherein the at least one conductive member comprises a single planar element, substantially coplanar with the at least one antenna element.
12. (Original): The antenna system of claim 1 wherein the at least one conductive member comprises a plurality of planar elements, substantially coplanar with the at least one antenna element.
13. (Currently Amended): ~~[[The]]~~ An antenna system of claim 1, comprising:

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one passive conductive member, having edges displaced from and substantially  
directed toward the plurality of active antenna elements, and cooperating therewith to establish a  
plurality of hemispherical beam patterns;

wherein the at least one conductive member comprises a substantially angled member.

14. (Original): The antenna system of claim 13 wherein the substantially contoured member is an angled member having a vertex edge substantially directed toward the at least one antenna element.

15. (Currently Amended): ~~[[The]]~~An antenna system of claim 1 further comprising:  
a plurality of active antenna elements for sending and receiving a wireless signal;  
at least one passive conductive member, having edges displaced from and substantially  
directed toward the plurality of active antenna elements, and cooperating therewith to establish a  
plurality of hemispherical beam patterns; and

a sandwich module for providing a further level of antenna isolation.

16. (Original): The antenna system of claim 15 wherein the sandwich module comprises metal plates that substantially face the at least one conductive member at a perpendicular angle.

17. (Original): The antenna system of claim 15 where the sandwich module comprises a separation material having RF isolating properties, for providing a further level of antenna isolation.

18. (Original): The antenna system of claim 1 wherein the at least one antenna element is a dipole antenna and the at least one conductive member is at least one discrete component.

19. (Original): The antenna system of claim 1 wherein the at least one antenna element and at least one conductive member are formed on a single piece of circuit board material.

20. ~~(Original)~~Currently Amended: ~~[[The]]~~An antenna system of claim 1, comprising:

## BEST AVAILABLE COPY

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one passive conductive member, having edges displaced from and substantially  
directed toward the plurality of active antenna elements, and cooperating therewith to establish a  
plurality of hemispherical beam patterns;

wherein the antenna element is shorter than the respective edge of the conductive member.

21. (Currently Amended): A wireless device comprising:

a radio transceiver comprising a plurality of radio components for processing a wireless signal;

a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one central passive conductive member situated between the plurality of antenna  
elements, having edges displaced from and substantially directed toward the plurality of active  
antenna elements, and cooperating therewith to establish a plurality of hemispherical beam  
patterns for the wireless signal.

Claim 22 (canceled)

23. (Currently Amended): The wireless device of claim 21 wherein the ~~at least one~~ plurality of  
active antenna elements ~~comprises a plurality of antenna elements,~~ are disposed respectively  
along the periphery of the at least one conductive member, and cooperating therewith to establish  
a respective plurality of hemispherical beam patterns.

24. (Original): The wireless device of claim 21 wherein a first portion of antenna  
elements are adapted to operate over a first wireless frequency band, and wherein a second  
portion of antenna elements are adapted to operate over a second wireless frequency band.

25. (Original): The wireless device of claim 24 wherein the first and second wireless  
frequency bands are 2.4 GHz and 5 GHz wireless bands.

26. (Currently Amended): ~~[[The]]~~ A wireless device of claim 21, comprising:

**BEST AVAILABLE COPY**

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

a radio transceiver comprising a plurality of radio components for processing a wireless signal;

a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one passive conductive member, having edges displaced from and substantially  
directed toward the plurality of active antenna elements, and cooperating therewith to establish a  
plurality of hemispherical beam patterns for the wireless signal;

wherein the at least one conductive member comprises a plurality of non-intersecting conductive members wherein each conductive member is associated with at least one antenna element.

27. (Original): The wireless device of claim 26 wherein the plurality of conductive members comprise first and second conductive members, located at a substantially perpendicular angle.

28. (Original): The wireless device of claim 27 wherein each conductive member is associated with a pair of antenna elements, disposed at respective opposite ends of the respective conductive member.

29. (Original): The wireless device of claim 28 wherein the pair antenna elements associated with the first conductive member are adapted to operate on a first wireless frequency band and the pair of antenna elements associated with the second conductive member are adapted to operate on a second wireless frequency band.

30. (Original): The wireless device of claim 29 wherein the first and second wireless frequency bands are 2.4 GHz and 5 GHz wireless bands.

31. (Original): The wireless device of claim 21 wherein the at least one conductive member comprises a single planar element, substantially coplanar with the at least one antenna element.

## BEST AVAILABLE COPY

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

32. (Original): The wireless device of claim 21 wherein the at least one conductive member comprises a plurality of planar elements, substantially coplanar with the at least one antenna element.
33. (Currently Amended): ~~[[The]]~~A wireless device of claim 21, comprising:  
a radio transceiver comprising a plurality of radio components for processing a wireless signal;  
a plurality of active antenna elements for sending and receiving a wireless signal; and  
at least one passive conductive member, having edges displaced from and substantially directed toward the plurality of active antenna elements, and cooperating therewith to establish a plurality of hemispherical beam patterns for the wireless signal;  
wherein the at least one conductive member comprises a substantially angled member.
34. (Original): The wireless device of claim 33 wherein the substantially contoured member is an angled member having a vertex edge substantially directed toward the at least one antenna element.
35. (Currently Amended): ~~[[The]]~~A wireless device of claim 21 further, comprising:  
a radio transceiver comprising a plurality of radio components for processing a wireless signal;  
a plurality of active antenna elements for sending and receiving a wireless signal;  
at least one passive conductive member, having edges displaced from and substantially directed toward the plurality of active antenna elements, and cooperating therewith to establish a plurality of hemispherical beam patterns for the wireless signal; and  
a sandwich module for providing a further level of antenna isolation.
36. (Previously Presented): The wireless device of claim 33 wherein the sandwich module comprises metal plates that substantially face the at least one conductive member at a perpendicular angle.

## BEST AVAILABLE COPY

Appl No. 10/686,233  
Amdt. dated February 9, 2006  
Reply to Office action of December 12, 2006

37. (Previously Presented): The wireless device of claim 33 where the sandwich module comprises a separation material having RF isolating properties, for providing a further level of antenna isolation.
38. (Previously Presented): The wireless device of claim 21 wherein the at least one antenna element is a dipole antenna and the at least one conductive member is at least one discrete component.
39. (Previously Presented): The wireless device of claim 21 wherein the at least one antenna element and the at least one conductive member are formed on a single piece of circuit board material.
40. (Currently Amended): ~~[[The]]~~A wireless device ~~of claim 21, comprising:~~  
a radio transceiver comprising a plurality of radio components for processing a wireless signal;  
a plurality of active antenna elements for sending and receiving a wireless signal;  
at least one passive conductive member, having edges displaced from and substantially directed toward the plurality of active antenna elements, and cooperating therewith to establish a plurality of hemispherical beam patterns for the wireless signal; and  
wherein the antenna element is shorter than the respective edge of the conductive member.

Claims 41-62 (Canceled)